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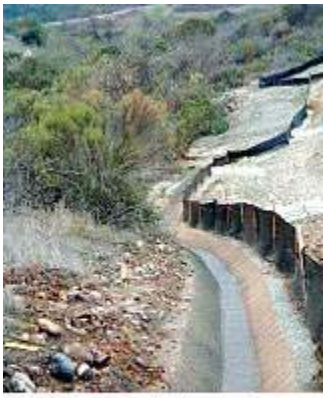
Using Cross Barriers With Linear Sediment Controls

The *Caltrans Construction Site Best Management Practices (BMPs) Manual* requires the use of cross barriers under certain conditions when implementing temporary linear sediment barriers (silt fences, sandbag barriers, or straw bale barriers). Yet required installation of cross barriers is often overlooked on the construction site. This bulletin reviews the importance of cross barriers for managing storm water and summarizes installation and maintenance requirements.

Why Use Cross Barriers?



When a linear barrier is not installed along a level contour (as shown here), cross barriers are required at intervals defined by the maximum reach for the linear barrier.

Cross barriers function as check dams, slowing the flow of storm water behind the linear sediment barrier to reduce erosion and remove sediment from storm water. Cross barriers are small barriers constructed of sandbags placed perpendicular to the linear sediment barrier at required intervals. The interval between cross barriers is determined by the maximum reach defined for each type of linear barrier.

What is a Reach?

For linear barriers *installed along a level contour,* the maximum reach for all barrier types is 150 m. That is, if the linear barrier exceeds 150 m in length, cross barriers must be constructed at 150 m intervals along its length.

When linear barriers are not installed along a level contour, storm water tends to concentrate behind the barrier and flow downhill, parallel to the barrier. To minimize the water pollution effects of these concentrated flows, cross barriers are required at the boundaries of each reach, as follows:

- For silt fences, the maximum length of the reach is such that the change in base elevation cannot exceed 1/3 the height of the linear barrier, to a maximum of 150 m in length.
- For sandbag barriers and straw bale barriers, the maximum length of a reach is such that the change in base elevation cannot exceed ½ the height of the linear barrier, to a maximum of 150 m in length.

General Installation Guidelines

Other installation requirements for all cross barriers include:

- Install cross barriers on the up-slope side, perpendicular to the linear barrier.
- Place the cross barrier to interrupt flow along the setback between the linear barrier and the slope.
- Fill sandbags in accordance with material specifications in BMP SC-8, Sandbag Barrier.
- Offset sandbag rows and layers to eliminate gaps in the cross barrier.

Specific cross barrier installation requirements for each type of linear sediment barrier are specified in the BMPs and summarized here.

Cross Barriers for Silt Fences (SC-1)

A cross barrier along a sandbag barrier.

For silt fence installations, the minimum height required for cross barriers is 1/3 the height of the silt fence (250 mm). The maximum cross barrier height is ½ height of the silt fence (375 mm).

Cross Barriers for Sandbag Barrier (SC-8) and Straw Bale Barrier (SC-9)

For sandbag barrier and straw bale barrier installations, the required minimum cross barrier height is ½ the height of the linear sediment barrier (115 mm for sandbag barriers and 175 mm for straw bale barriers). The maximum cross barrier height is 1/3 the height of the linear sediment barrier (154 mm for sandbag barriers and 234 mm for straw bale barriers).

Maintenance Requirements

Inspect and maintain cross barriers as part of the linear sediment barrier. Inspect cross barriers before and after each rainfall event, and weekly throughout the rainy season. Remove accumulated sediment and repair or replace cross barriers as needed.

STORM WATER HOME